Increasing Mental Health Treatment-Seeking in Primary Care:

Is Age Related to Intervention Response?

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Abstract

One-half of Americans will suffer from a mental disorder in their lifetime, but only one-third of those individuals will promptly seek professional treatment. Empirical studies have identified malleable barriers (e.g., insight, avoidance) to seeking mental health care among younger and older adults. However, few interventions have been developed targeting these factors. In the current study, we designed two interventions (i.e., education, avoidance-reduction) aimed to increase treatment-seeking and tested them against an enhanced referral condition. Individuals who reported elevated depressive symptoms were recruited from a primary care setting. Participants (N = 121) were randomized into one of three interventions (i.e., enhanced referral, education, avoidance-reduction). We hypothesized that the education and avoidance-reduction interventions would be more effective than the enhanced referral at increasing treatment-seeking. Further, we hypothesized that younger adults would be more likely to seek treatment after receiving the education intervention and older adults would be more likely to seek treatment after receiving the avoidance-reduction intervention. These hypotheses were not supported; intervention was not a significant predictor of treatment-seeking, (Wald's $\chi^2(2) = 4.01$, $p = .13$), and the relationship between treatment-seeking and intervention was not moderated by age, (Wald's $\chi^2(2) = 3.32$, $p = .19$). These findings suggest that educating individuals on mental health issues or teaching goal-directed treatment behavior does not increase treatment-seeking more than providing individualized treatment referral materials. Findings also suggest that younger and older adults' treatment-seeking behaviors are not differentially impacted by type of intervention. Future research should replicate the current study using an increased sample size, a treatment-as-usual control condition, and stratified randomization to assure that age is evenly distributed between interventions.

Increasing Mental Health Treatment-Seeking in Primary Care: Is Age Related to Intervention Response?

One-half of Americans will suffer from a treatable mental disorder in their lifetime (Kessler et al., 2005). Unfortunately, only one-third of those individuals will seek treatment from a health professional when the need arises (Andrews, Issakidis, & Carter, 2001). With depressive disorders (i.e., major depressive disorder (MDD), dysthymic disorder) being the leading cause of disability worldwide (Ustün, 1999), it is disheartening that only one-fourth of those with depressive disorders consult a mental health professional (Andrews et al., 2001). Even more distressing are findings indicating that 41% of individuals thinking about suicide have not sought any professional help in the last year (Johnston, Pirkis, & Burgess, 2009).

This reluctance of individuals with mental disorders to seek professional help can lead to serious consequences for the individual as well as society. Over one-third of those with MDD report that their depression severely interferes with their life (Kessler & Walters, 1998). Specifically, depression often keeps individuals from maintaining stable relationships, participating in the hobbies they love, and reaching their goals. Kessler and Walters (1998) have calculated that nationally over 150 million work days are impaired each year as a result of depression among young adults. In addition, about one quarter of the homeless population suffers from mental disorders such as schizophrenia, MDD, and bipolar disorder (Lehman & Cordray, 1994). These serious consequences are particularly troublesome given the efficacy of professional treatment in reducing symptoms of psychological distress as well as protecting against future distress (Rickwood, Deane, & Wilson, 2007). Cognitive Therapy (CT), for example, has been widely studied and found to be very effective at treating a broad range of disorders, including unipolar depression, generalized anxiety disorder, panic disorder, social

phobia, PTSD, and childhood depressive and anxiety disorders (Butler, Chapman, Forman, & Beck, 2006). Additionally, seeking out mental health treatment has been found to reduce the risk of suicide (Kalafat, 1997). Therefore, if more mentally ill individuals utilize the effective treatments that are available, fewer lives would be impaired because of a mental disorder, which would allow more individuals to be productive members of society. Given this information, it becomes important to not only understand the factors that may hinder mental health treatment-seeking, but to also develop interventions aimed towards increasing treatment-seeking by those in need.

Age-Specific Barriers

The research has shown a strong age effect in mental health treatment-seeking in that both younger (Andrews et al., 2001; Rickwood & Braithwaite, 1994) and older (Andrews et al., 2001; Wang et al., 2005) adults are less likely than adults in middle age to seek treatment. Researchers have consistently found that young adults have poor mental health literacy. Jorm et al. (1997) refer to mental health literacy as "the ability to recognize specific disorders; knowing how to seek mental health information; knowledge of risk factors and causes, of self-treatments, and of professional help available; and attitudes that promote recognition and appropriate help-seeking" (p. 182). In a recent study, 70% of young adult participants with clinical levels of psychopathology believed their problems were not serious, and 72% believed their problems would go away on their own (Vanheusden et al., 2008). In another study, not knowing where or how to seek help for psychological distress was reported as a significant barrier to help-seeking among young adults (Rickwood, Deane, Wilson, & Ciarrochi, 2005). This research clearly indicates a lack of knowledge and mental health literacy among younger adults and suggests that these factors may account for low mental health treatment-seeking among this population.

Further, reduced mental health literacy has been associated with more negative beliefs and attitudes toward treatment, an effect found in young adults, particularly (Jagdeo, Cox, Stein, & Sareen, 2009). Researchers have also found, however, that young adults who sought psychological help in the past reported high levels of satisfaction (Robb, Haley, Becker, Polivka, & Chwa, 2003). These findings suggest that once young adults develop more knowledge of treatment, the benefits of treatment may become more salient. An intervention aimed at increasing mental health literacy may be effective in increasing treatment-seeking, especially among younger adults.

Older adults, in contrast, are likely to have had increased exposure and knowledge regarding mental health as well as treatment. In fact, although older adults are less likely to seek treatment from a mental health professional, studies suggest that older adults hold generally positive attitudes regarding help-seeking (Berger, Levant, McMillan, Kelleher, & Sellers, 2005). Therefore, other factors likely account for decreased treatment-seeking in this population. Research indicates that a frequent barrier to treatment for older adults is the belief that one should not require mental health treatment and should be able to cope independently. Switzer, Wittink, Karsch, and Barg (2006) found that the idea of "pulling yourself up by your bootstraps" was commonly endorsed and associated with lower treatment-seeking behavior in those over the age of 65.

Researchers have suggested that older adults with psychological problems may avoid professional help because it might rob them of their independence (Hadas & Midlarsky, 2000). This is an understandable response considering that autonomy is highly valued in older adult populations (Kahana, Midlarsky, & Kahana, 1987). In fact, in a recent study, older adults admitted that a primary reason for their low mental health service usage was a fear of nursing

home placement (Robb et al., 2003), which is often viewed as loss of independence. Unfortunately, depression tends to diminish initiative and self-worth (Switzer et al., 2006), making it less likely that a depressed individual is able to establish and maintain a plan for recovery on their own. As older adults have had many years to develop these belief systems and coping responses, avoidant coping may be a more prominent factor in treatment-seeking in this population than in younger adults. These findings suggest that an intervention aimed at increasing problem-solving and decreasing avoidant coping may be effective in increasing treatment-seeking, especially among older adults.

Primary Care

Primary care physician's (PCP) offices are the most promising settings for brief interventions aimed at increasing mental health treatment-seeking, as the majority of psychologically distressed individuals first present in such settings (Rickwood et al., 2005). In fact, a PCP may be the only professional help source an individual seeks help from when experiencing suicidal ideation (Luoma, Martin, & Pearson, 2002). Unfortunately, mental health assessment in PCP offices is often inadequate. Researchers have found that in PCP offices only 1 in 5 patients receive adequate treatment for a psychological disorder (Kessler et al., 2003). Feldman et al. (2007) found that suicide was explored in only 36% of 298 cases presented by actresses reporting significant symptoms of MDD. In fact, approximately 45% of individuals who completed suicide had contact with their PCP one month prior (Luoma et al., 2002). Also, distressed patients receiving mental health treatment in PCP offices report more negative attitudes toward treatment compared to patients receiving treatment from a mental health specialist (Van Voorhees et al., 2003). Because PCPs are not effectively assessing and treating mental illnesses, it is important to cultivate referral practices that are both feasible and effective.

Unfortunately, PCPs have problematically low referral rates when treating patients with a mental illness. Several studies have noted that this is a significant problem (e.g., Huxley, 1996; Rickwood et al., 2005; Robb et al., 2003). Specifically, PCPs have been found to refer as few as 12% of their psychologically distressed patients to secondary care (Huxley, 1996). In other words, up to 88% of distressed patients in PCP offices are not given access to the treatment they need to most effectively reduce their depressive symptoms.

Current Study

Despite the obvious benefits of interventions aimed at increasing mental health treatment-seeking, this research has rarely been completed. In the current study, we have created and tested two interventions that target some of the most prominent and malleable barriers to treatment-seeking. We created both education (i.e., EDUC) and avoidance-reduction (i.e., GAINS) interventions, designed to encourage mental health treatment-seeking following referrals for depressive symptoms in a primary care setting. We hypothesized that participants randomized to the EDUC or GAINS interventions would engage in more mental health treatment-seeking than participants randomized to the enhanced referral (i.e., ER), control condition. In our second hypothesis, we predicted that the effectiveness of intervention type would be moderated by age, such that younger adults would be most likely to seek mental health treatment when randomized to the EDUC intervention versus the GAINS or ER intervention, and older adults would be most likely to seek mental health treatment when randomized to the GAINS intervention versus the EDUC or ER intervention.

Method

Participants

The sample was comprised of 121 participants recruited from the Rardin PCP office, which is part of the Ohio State University Primary Care Practice-Based Research Network (OSU-PCPBRN). To participate, participants had to be at least 18 years old, currently be experiencing significant depressive symptoms (i.e., report a score of 14 or above on the Beck Depression Inventory (BDI-II)), and not currently be receiving combination treatment of both psychotherapy and antidepressant medication. There were no additional inclusion or exclusion criteria.

One hundred twenty-one participants were randomized into the three intervention arms with 41 participants in the ER condition, 40 in the EDUC condition, and 40 in the GAINS condition. The sample ranged in age from 18 to 72, (M = 38.85, SD = 13.17).

Measures

Good validity and reliability have been reported for all of the measures used in the study. The following measures examined current symptomatology and mental health history as well as various related psychological constructs.

Depressive symptoms. The Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a nine-item scale used to assess symptoms and impairment related to depression. The scale was developed directly from the major criteria for MDD in the DSM-IV and is designed to be used in primary care settings. The authors found the scores of the PHQ-9 to be highly reliable and valid.

Severity of depression. The Beck Depression Inventory – 2nd Edition (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item, self-report instrument used to assess the severity of

symptoms of depression. Respondents are asked to describe how they have been feeling during the past week by rating each item (e.g., sadness, pessimism, loss of pleasure) on a scale from 0 to 3. Thus, possible scores are 0 (minimal depressive symptoms) to 63 (high depressive symptoms).

Demographics. The Demographics Questionnaire consists of several questions assessing general information regarding the participants' age, sex, ethnicity, marital status, family, friends, and education level. The questionnaire also assesses current symptom onset, previous mental health diagnoses, and past suicide attempts. The questionnaire includes items regarding previous treatment experience including type of treatment received, number of visits, and perceived helpfulness of treatment. This self-report questionnaire was created by the researchers. See Appendix A.

Acceptance and action. The Acceptance & Action Questionnaire (AAQ; Hayes et al., 2004) is a 9-item measure that assesses one's willingness to accept undesirable thoughts and feelings while acting in a way that is congruent with one's own values and goals. The questionnaire uses a 7-point Likert scale with higher scores indicating a higher level of acceptance. The AAQ was found to have test-retest reliabilities of 0.79 and 0.72 one year later (Bond & Bunce, 2003).

Attitudes toward help-seeking. The Attitudes Toward Seeking Professional Psychological Help (ATSPPH; Fischer & Turner, 1970) scale consists of 29 items measuring the extent to which people perceive the likelihood that they would seek psychological help. The scale aims to address recognition of need for help, stigma tolerance, interpersonal openness, and confidence in mental health practitioners with higher scores indicating a positive attitude toward help-seeking. The authors reported internal reliabilities that ranged from .83 to .86 and test-

retest reliabilities of .86 to .82 two months later. The scale has been found to discriminate well between those who seek treatment and those who do not.

Follow-up. The Follow-up Questionnaire was used to ascertain any treatment-seeking behaviors (e.g., contacting a mental health professional or other source) that the participant engaged in following the baseline assessment and intervention. This self-report questionnaire was created by the researchers. See Appendix A.

Procedure

Once a patient arrived at the primary care office, he or she received a PHQ-9 in the regular appointment intake packet. The patient was then taken to a private clinic room to begin their scheduled appointment, and returned the completed PHQ-9 to the medical assistant. Any patient who scored a 10 or higher on the PHQ-9 was invited to participate, as this score has been found to indicate a significant level of depression in non-clinical, adult samples. Additionally, any patient who indicated suicidal ideation, as indicated by a response of 2 (i.e., "more than half the days") or higher to the suicide item (i.e., question 9) on the PHQ-9 was considered to be qualified for the study. The patients were then asked if they were currently receiving combination treatment of both psychotherapy and antidepressant medication. If a patient was receiving one or the other, or no treatment at all, he or she was invited to participate in the study.

If a patient consented to study participation, he or she met with a research assistant (e.g., trained graduate or advanced undergraduate student) following the appointment with the PCP. All participants were first given a BDI-II to complete. If a participant scored below a 14 on the BDI-II, he or she was informed of the signs and symptoms of depression and was given a referral packet of available treatment resources. These participants were then compensated and no other data were collected.

If a participant scored above a 14 on the BDI-II, he or she was randomly assigned to one of three intervention arms. Participants in each group were asked to complete the questionnaires assessing hypothesized predictors of treatment-seeking (e.g., AAQ, ATSPPH). Following questionnaire completion, the research assistant used a script to inform participants that their scores indicated that they were experiencing some depressive symptoms and might benefit from seeking treatment. The participants then received an individualized referral packet, which included a list of mental health specialists in the area, based on the participant's insurance provider. Participants randomized to the enhanced referral (ER) condition were compensated and left without further intervention. Participants randomized to the other two groups, education (EDUC) and avoidance-reduction (GAINS), engaged in the assigned intervention administered by a doctoral student.

EDUC Intervention. Participants randomized to the EDUC intervention received a handout outlining various informational points regarding depression and mental health treatment (see Appendix B). The aim of the intervention was to increase the patient's knowledge of depression and potential benefits of treatment as well as to alleviate fears related to negative consequences associated with treatment. The intervention lasted approximately 15 minutes.

GAINS Intervention. Participants in the GAINS intervention received a handout aimed at decreasing avoidance and increasing goal-directed, treatment behavior through the delineation of help-seeking pathways (see Appendix C). Specifically, the intervention utilized four steps mapped onto the GAINS acronym: identification of Goals, Avenues, Impediments, and Necessary Steps. The intervention consisted of a brief assessment of the goals/values held by the participant and the ways in which his or her depressive symptoms impeded access to these goals/values. The intervention was completed with a worksheet outlining possible avoidant

patterns in the participant's life, an examination of how these behaviors may be inhibiting movement towards goals/values (e.g., high functioning and mental health), and how to problem-solve to increase treatment-seeking. Similar to the EDUC intervention, this intervention lasted approximately 15 minutes.

All participants were contacted by email, postal mail, or phone for follow-up assessments four weeks following the initial assessment. On average, however, follow-up information was gathered five weeks following the initial assessment due to delayed responding (e.g., participants took a week to return the follow-up packet). One participant, however, took 63 weeks (i.e., nine standard deviations above the mean) to return the follow-up packet. Because this participant had much more time than the others to seek treatment, we ran all analyses with and without this participant to see if his/her data created any significance. It was decided, however, to keep the outlier in the data, given that its inclusion did not affect the analyses. Because the outlier was retained, a median was used to describe the average number of weeks it took to collect the follow-up data. For the follow-up survey, participants were asked to report on any help-seeking behavior since the time of the intervention. Participants were compensated with $10 at baseline and $5 at follow-up, culminating in a total of $15.

Data Analysis

We used logistic regression to analyze the data, as it allows for the use of a dichotomous dependent variable (e.g., treatment-seeking or no treatment-seeking). The intervention arms served as the three levels of the independent variable, age served as the interaction term, and treatment-seeking was the primary dependent variable. All analyses were performed with Statistical Analysis Software (SAS). We examined the data to assure that all assumptions of logistic regression were met and any outliers were identified. If a datum fell more than three

standard deviations above or below the mean for that target variable, all analyses were performed with and without that datum to see if it created any significance. If an analysis was significant only when the outlier was included, the outlier was removed. In these analyses, assumptions of linearity of the logit, normality, independence, homoscedasticity, independence of error, absence of multicollinearity, and measurement of variables without error were all assessed and met. Participants were randomly assigned to one of the three interventions, assuring that the observations were independent. The logistic regression model also requires that the model contain all relevant predictors and no irrelevant predictors under the specificity assumption. Thus, variables that have been found to be significant predictors of treatment-seeking in previous studies were included in the first model and those that were found to be significant in this sample were included in all subsequent models as control variables. Finally, logistic regression is also based on the assumption that the dependent variable categories are mutually exclusive and exhaustive, which is true of this design; participants could seek mental health treatment or not.

The stepwise selection procedure for logistic regression was used to identify all relevant explanatory variables from the full battery of questionnaires given at intake that had a significant impact on treatment-seeking behavior upon follow-up. Variables were selected from the literature and included sex, ethnicity, relationship status, education, current antidepressant medication use, and previous treatment experience. Scores of several questionnaires were also entered into the model; specifically, questionnaires assessing depressive symptoms (BDI-II), acceptance (AAQ), and attitudes regarding mental health treatment (ATSPPH) were included. All questionnaire variables were mean-centered to ease interpretation (see *Table 2* for scores on these questionnaires at intake for each treatment group). The model was set to include one variable at each step; variables significant at or below the level of $p = .30$ were allowed to enter

the model and were retained in the full model if a significance level of $p = .05$ was maintained (Hosmer & Lemeshow, 1989). Again, the dependent variable was whether the participant reported any effort to receive treatment from a professional resource (i.e., mental health professional or PCP) in the weeks between intervention and follow-up (regardless of the participant's success in obtaining treatment).

The overall likelihood ratio test (G) determined whether any predictor coefficient differed from zero and was significant. For each predictor variable, an odds ratio (and 95% confidence interval) was found that reflected how likely a person high on that target variable was to seek treatment while controlling for the other variables. Discriminant analysis (Klecka, 1980) was used to examine the relationship between the intervention arms, specifically the effectiveness of the EDUC and GAINS interventions against the ER condition.

We also used a Pearson correlation, as it allows for interval variables (i.e., age, ATSPPH, AAQ, BDI-II), to analyze the direction of relationships between age and all variables relevant to treatment-seeking. The strength of association between two variables was significant at or below $p = .05$. The Pearson correlation assumes a linear relationship between two variables, which was true of the relevant variables.

Results

The groups were found to be equal in terms of ethnicity, marital status, education, and SES (see *Table 1*). The groups were also found to be equal in terms of BDI-II, AAQ, and ATSPPH scores (See *Table 2*). However, groups differed significantly in terms of age and gender. Those in the ER ($M = 42.98$, $SD = 12.92$) intervention were found to be older, on average, than those in the GAINS ($M = 35.55$, $SD = 12.17$) intervention, ($F(1,78) = 7.00$, $p =$

.009). Similarly, the GAINS intervention had a greater proportion of females (n = 35, 88%) compared to the ER intervention (n = 25, 63%), ($F(1,78) = 7.09$, p = .009).

Follow-up data were collected from 116 of the 121 (96%) participants, with n = 37 (90%) in the ER condition, n = 40 (100%) in the EDUC condition, and n = 39 (98%) in the GAINS condition. There was no difference in follow-up data collection between groups, ($F(2,118) = 2.68$, p = .07). Seventy-nine (65%) participants responded to the mail or email follow-up survey. The remaining 37 (31%) participants' follow-up information was collected over the phone, and follow-up BDI-II scores are not available for these participants.

Of the 116 participants providing follow-up information, 73 (64%) reported seeking professional help (i.e., mental health specialist or PCP) for depression in the weeks following the intervention. The majority of treatment-seeking participants (n = 55, 74%) sought help from a mental health specialist (i.e., psychologist, psychiatrist, counselor, social worker), although only 25 (45%) of these participants were successful in securing an appointment. Participants less commonly reported seeking treatment from a PCP (n = 18, 24%), religious advisor (n = 4, 5%), and/or another, undesignated source (n = 4, 5%).

The initial model, a stepwise logistic regression, was used to identify all variables that had a significant impact on treatment-seeking behavior at follow-up, which would serve as control variables in all subsequent models. When including only the intercept, this model was significant (LR $\chi^2(4) = 18.75$, $p < .002$) with an $e^{\beta} = 1.87$, suggesting that, without the consideration of any predictor variables, the odds of seeking treatment was nearly two times greater than the odds of not seeking treatment. The first independent variable entered into the stepwise selection model, ATSPPH scores, was significant (Wald's $\chi^2(1) = 7.09$, B = .61, SE = .23, p = .008) with $e^{\beta} = 1.84$, indicating that the odds of seeking treatment was nearly two times

higher for a person whose attitudes toward treatment were one standard deviation more favorable than the sample mean than for a person with average attitudes toward treatment. Ethnicity, coded as White or non-White, was the next variable entered into the model. Ethnicity (White = 1) was significant (Wald's $\chi^2(1) = 5.54$, B = -1.02, SE = .43, $p = .02$), with the $e^{\beta} = .36$, suggesting that the odds of treatment-seeking for a participant who is non-White were about 1/3 the odds of an individual who is White. In the third step, AAQ was entered into the model; it was not significant, however, and was not retained in the model (Wald's $\chi^2(1) = 3.17$, B = 0.40, SE = .22, $p = .08$). None of the remaining variables of interest qualified for model entry (i.e., $p > .30$), suggesting only attitudes regarding treatment and ethnicity were significant predictive variables for treatment-seeking in this sample.

Hypothesis Testing

Hypothesis One: *Participants randomized to education (EDUC) or avoidance-reduction (GAINS) interventions will engage in more mental health treatment-seeking than participants randomized to enhanced referral (ER).*

To examine the first hypothesis, intervention was entered into the model, with ATSPPH and ethnicity; the ER arm was set as the reference group. In this model, data from 110 participants were available, and 72 of these participants reported seeking treatment between the intervention and follow-up assessment. The main effect of intervention was not significant, (Wald's $\chi^2(2) = 4.01$, $p = .13$); see *Figure 1* for the percent of participants within each condition who sought treatment for depression following intervention. When examined more closely in the contrast statements, the difference in predicting treatment-seeking between the ER condition and the EDUC intervention was not significant, (Wald's $\chi^2(1) = 0.01$, $e^{\beta} = 1.05$, SE = .55, $p = .93$). The contrast between the ER and GAINS intervention arms was marginally significant, (Wald's

$\chi^2(1) = 2.75$, $e^{\beta} = .38$, SE = .22, $p = .10$). The difference between the EDUC intervention and the GAINS intervention was also marginally significant, (Wald's $\chi^2(1) = 3.44$, $e^{\beta} = 0.37$, SE = .20, $p = .06$) with the odds of seeking treatment estimated to be more than 1/3 higher for participants in the GAINS condition compared to the participants in the EDUC condition. These findings suggest that the EDUC and GAINS interventions did not increase treatment-seeking significantly more than simply providing individualized treatment referral materials.

Hypothesis Two: *The effectiveness of intervention type will be moderated by age such that:*

> ***H2a:*** *Younger adults will be most likely to seek mental health treatment when randomized to the EDUC intervention.*
>
> ***H2b:*** *Older adults will be most likely to seek mental health treatment when randomized to the GAINS intervention.*

Before addressing Hypothesis Two, a Pearson correlation was used to examine the relationship between age and variables relevant to treatment-seeking (i.e., ATSPPH, AAQ, BDI-II). Age was not significantly related to any relevant variables from the initial model (See *Table 3*). To address Hypothesis Two directly, an interaction term of age by intervention was entered into the logistic regression model, with ATSPPH and ethnicity included as covariates. The interaction effect of age and intervention was not significant (Wald's $\chi^2(2) = 3.32$, $p = .19$). To be sure that there was no significant interaction, we ran the model again without the covariates. In this model, including age and intervention as main effects along with the interaction term of age by intervention, the interaction term remained non-significant, (Wald's $\chi^2(2) = 1.11$, $p = .57$). See *Figure 2* for the percent of young adults compared to older adults within each intervention arm that sought treatment for depression. These findings suggest that younger and older adults' treatment-seeking behaviors are not differentially impacted by type of intervention.

Post Hoc Analyses

To examine any additional effects the EDUC and GAINS interventions had on participants, we ran a two-way mixed ANOVA examining change in symptoms of depression between the three interventions. In this model, data from 77 participants were available. In these analyses, assumptions of normality, independence, and homoscedasticity were all assessed and met; and outliers were identified. A significant difference in BDI-II change (BDI-II scores at baseline minus BDI-II scores at follow-up) was found between intervention arms, ($F(4,72) = 3.30$, $p = .04$). On average, participants in the GAINS intervention group reported depressive symptoms initially in the severe depression range (e.g., BDI-II score of 29-63) reducing to the mild range (e.g., 14-19; Beck, Steer, & Brown, 1996). The participants in the ER and EDUC conditions, however, reported only minimal reductions in depressive symptoms; most participants reported symptoms in the moderate range (e.g., 20-28) at follow-up. When examined in the contrast statement, there was a significant decrease in depressive symptoms among participants receiving the GAINS intervention ($M = -10.45$, $SD = 12.47$) compared to those in the ER arm ($M = -3.30$, $SD = 10.84$); $t(4) = 2.33$, $p = .02$. Similarly, there was a significant decrease in depressive symptoms among participants receiving the GAINS intervention compared to those receiving the EDUC intervention ($M = -5.17$, $SD = 14.12$); $t(4) = 2.07$, $p = .04$.

After one outlier (BDI-change score of 36) was removed, however, there was no longer a significant decrease in depressive symptoms among participants receiving the GAINS intervention compared to those in the ER intervention, $t(4) = 1.90$, $p = .06$. This suggests that the outlier created the significant decrease in depressive symptoms among participants between these two groups. However, the decrease in depressive symptoms among participants receiving

the GAINS intervention compared to those receiving the EDUC intervention remained significant after removing the outlier, $t(4) = 2.14$, $p = .04$. These findings indicated that the GAINS intervention predicted a significant decrease in depressive symptoms only when compared to the EDUC intervention. See *Figure 3* for the average BDI-II scores at intake compared to follow-up between intervention groups.

Discussion

The present study was performed to test the efficacy of two interventions (i.e., EDUC, GAINS) at increasing mental health treatment-seeking in a primary care setting, compared to a control condition (i.e., ER). The interventions were hypothesized to be moderated by age as empirical studies suggest that younger and older adults may have different barriers to mental health treatment. The present study was performed to improve mental health referral practices and increase the standard of care for the mentally ill in primary care.

The present findings indicated that neither the GAINS nor the EDUC intervention was a significant predictor of mental health treatment-seeking compared to the ER condition. This suggests that educating individuals on mental health issues or teaching goal-directed treatment-seeking behavior within a primary care setting does not increase treatment-seeking significantly more than simply providing patients with individualized treatment referral materials. One interpretation for this is that a lack of insight into mental health issues and the use of avoidant-coping are not as significant of barriers to mental health treatment as the literature suggests. Therefore, insight and avoidance may not have been the most pertinent factors to target when creating the GAINS and EDUC interventions. Future research should examine malleable factors that keep the mentally ill in a primary care setting from seeking help from a mental health

specialist, other than insight and avoidance, and create a treatment-seeking intervention that targets those factors.

A more likely reason the GAINS and EDUC interventions did not increase mental health treatment-seeking significantly more than the ER condition is because the ER was too effective, so it did not allow for much improvement. Specifically, the ER condition was nearly twice as effective as treatment-as-usual at increasing the likelihood that those with a mental illness seek professional treatment. Thus, the efficacy of the GAINS intervention at increasing treatment-seeking was very impressive compared to treatment-as-usual for the mentally ill, but not compared to the ER condition. Also, the ER condition was more effective than a similar ER condition that Bartels and colleagues (2004) tested on distressed participants in a PCP office. This reinforces the suggestion that our ER was much too effective to serve as a control condition. It should be noted, however, that Bartels and colleagues' (2004) sample was strictly older adults, so a comparison between the efficacy of their ER condition and our ER condition should be made with caution. Future research should test the exact GAINS intervention and ER condition from the current study, but compare them against a treatment-as-usual condition. The EDUC intervention should not be included in future treatment-seeking studies because it was the least effective intervention. In addition, a larger sample size in future studies would likely produce significant results, given that the GAINS intervention was marginally significant at predicting treatment-seeking compared to the EDUC and ER interventions, even with a small sample size of 121 participants.

The effect of the GAINS and EDUC interventions not significantly increasing mental health treatment-seeking compared with the ER condition was not due to an unusually high or low BDI-II range among the sample. The distribution of scores reflected that of Watkins et al.'s

(2011) BDI-II distribution (M = 32.53; SD = 9.79) within their study dealing with a comparable, psychologically distressed, primary care sample. Similarly, the GAINS and EDUC interventions not significantly increasing mental health treatment-seeking was not due to an uneven distribution of depressive symptoms between groups; neither of the three groups' BDI-II scores at intake were more than one standard deviation away from another.

The present findings also indicate that the relationship between mental health treatment-seeking and intervention was not moderated by age. This lack of an interaction suggests that younger and older adults' treatment-seeking behaviors are not differentially impacted by type of intervention. So, when creating treatment-seeking interventions in the future, researchers should not create separate interventions for younger and older adults. Instead, interventions should be directed towards all age groups.

The lack of an interaction between age and interventions could also be due to the significant difference in ages between the GAINS intervention and the ER condition. Specifically, participants receiving the GAINS intervention were significantly younger than participants receiving the ER condition. Therefore, the participants receiving the GAINS intervention, which was hypothesized to be more efficient with older adults, may not have been sufficiently old for the intervention to reach its potential. Future research looking at age-specific treatment-seeking interventions should replicate the current study, but use a stratified randomization technique to assure that age is evenly distributed between treatment groups.

An alternative explanation why the older adults were not most likely to seek treatment after receiving the GAINS intervention is that our sample of older adults was abnormal in terms of avoidance towards mental health treatment. In other words, because the older adults presented at the PCP office and consented to participate in our study, which was clearly looking at their

depressive symptoms, they must have been less avoidant than the general older adult population. Therefore, avoidance may not have been as prominent of a barrier to mental health treatment among our sample of older adults as it is with the general population of older adults. This could be a reason the GAINS intervention, which was aimed to reduce the tendency to avoid mental health treatment, was not more effective at increasing treatment-seeking among our older participants compared to our younger participants.

Post-Hoc analyses revealed that the GAINS intervention predicted a significant decrease in depressive symptoms compared to the EDUC intervention. This suggests that the GAINS intervention gave participants more hope and tools to deal with their mental illness, so that treatment may not have been as needed as it was at intake. Thus, instead of increasing treatment-seeking as predicted, the GAINS intervention seemed to act as a somewhat effective treatment in itself, decreasing participants' depressive state from severe to mild, on average. An intervention as quick-acting as the GAINS intervention is ideal for this type of setting, given that PCPs in the United States are allowed 32 minutes on average for a new patient appointment (Konrad et al., 2010). Also, many individuals experiencing severe depression are considering suicide and often cannot cope with the symptoms for an extended period of time, so a quick-acting intervention is, again, ideal. Future research should examine who would be the most competent professional (i.e., PCP, Psychologist, Counselor, Psychiatrist) for carrying out this type of intervention in a primary care setting.

Although it is impressive that the GAINS intervention significantly decreased participants' depressive symptoms in such a short time, we cannot tell if this effect lasted more than five weeks, because only one follow-up was performed at this time. Future studies should examine the effects of an identical GAINS intervention in a PCP office, and follow-up six

months and then a year after the intervention. This will provide insight into how long the GAINS intervention decreased participants' depressive symptoms for, and whether symptoms came back.

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Table 1
Demographic Characteristics of Participants

	Intervention Group						*p*[a]
	ER		EDUC		GAINS		
Characteristic	*n*	%	*n*	%	*n*	%	
Gender							.04*
Male	15	38	10	25	5	13	
Female	25	62	30	75	35	87	
Ethnicity							.74
White	23	58	23	58	20	50	
Non-white	17	42	17	42	20	50	
Marital Status							.91
Single	19	48	20	50	18	45	
Partnered	21	52	20	50	22	55	
Years of education completed							.34
10	11	28	7	18	6	15	
12	6	15	10	25	1	3	
14	12	30	15	37	24	60	
16	7	17	7	17	6	15	
18	4	10	1	3	3	7	
Socio economic status							.24
Low SES	33	83	27	71	31	86	
Average/above SES	7	17	11	29	5	14	

Note. Participants had the additional options of 'Black,' 'Hispanic,' and 'Asian' on the Demographics Questionnaire (see Appendix A). These three ethnic groups were too small to allow for sufficient power and were merged into the ethnic category of 'Non-White.'

[a]P-value is contrasting all three treatment groups.

* $p < .05$.

Table 2
Mean Scores on Questionnaires Assessing Hypothesized Predictors of Treatment-Seeking at Intake

	Intervention Group						*p*[a]
	ER		EDUC		GAINS		
Measure	*M*	SD	*M*	SD	*M*	SD	
BDI-II	30	12	32	10	31	11	.82
AAQ	42	6	42	6	43	7	.74
ATSPPH	58	12	55	9	54	13	.31

Note. BDI-II: Beck Depression Inventory- 2nd Edition scores; AAQ: Acceptance & Action Questionnaire scores; ATSPPH: Attitudes Toward Seeking Professional Psychological Help scores.

[a]No differences are significant at the $p < .05$ level.

Table 3

Intercorrelations Between Age and Relevant Variables

Variable	1[a]
1. Age	---
2. ATSPPH	.18
3. AAQ	-.22
4. BDI-II	-.10

[a]No correlations are significant at the $p < .05$ level.

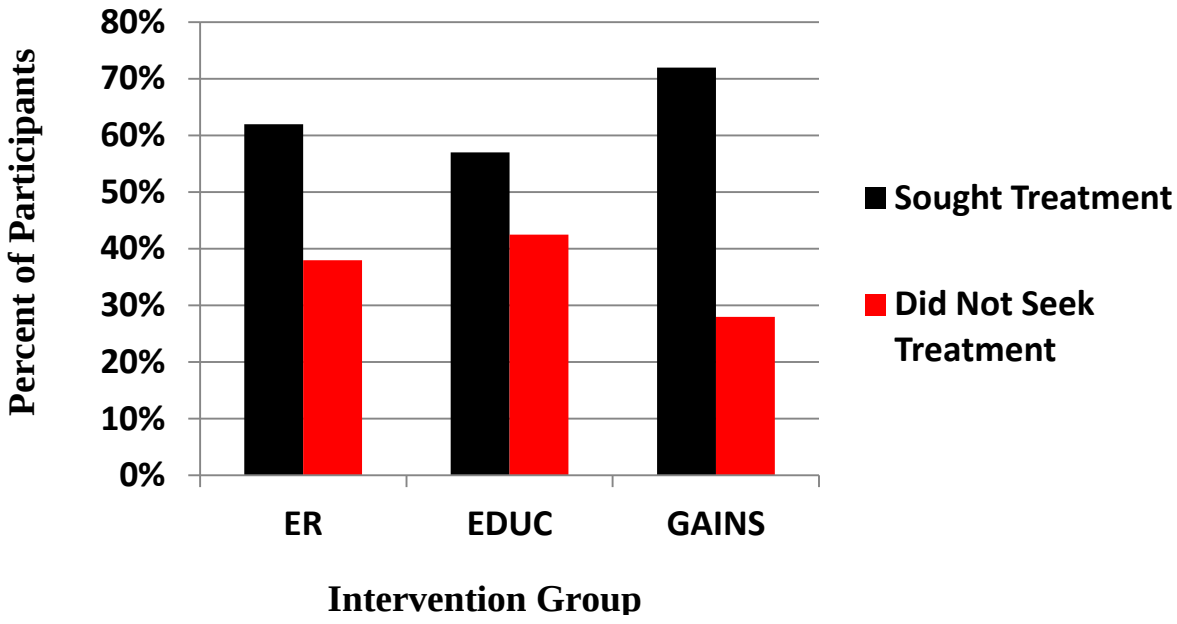

Figure 1. Treatment-seeking by intervention group.

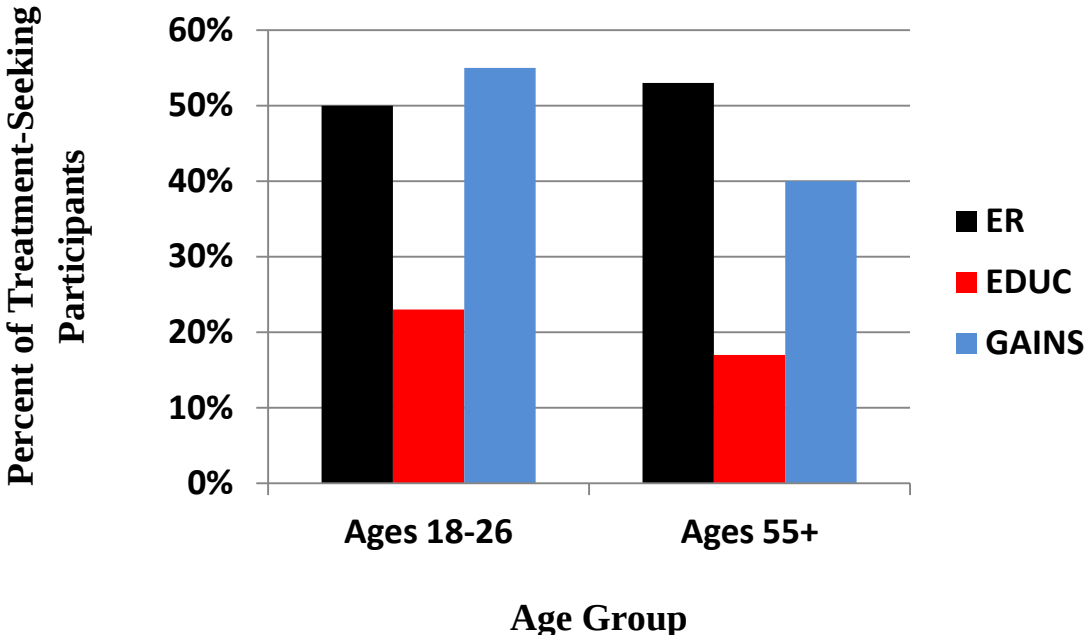

Figure 2. Treatment-seeking by age.

Note. Although age was a continuous variable in the analyses, it was divided into groups for ease of interpretation for this figure.

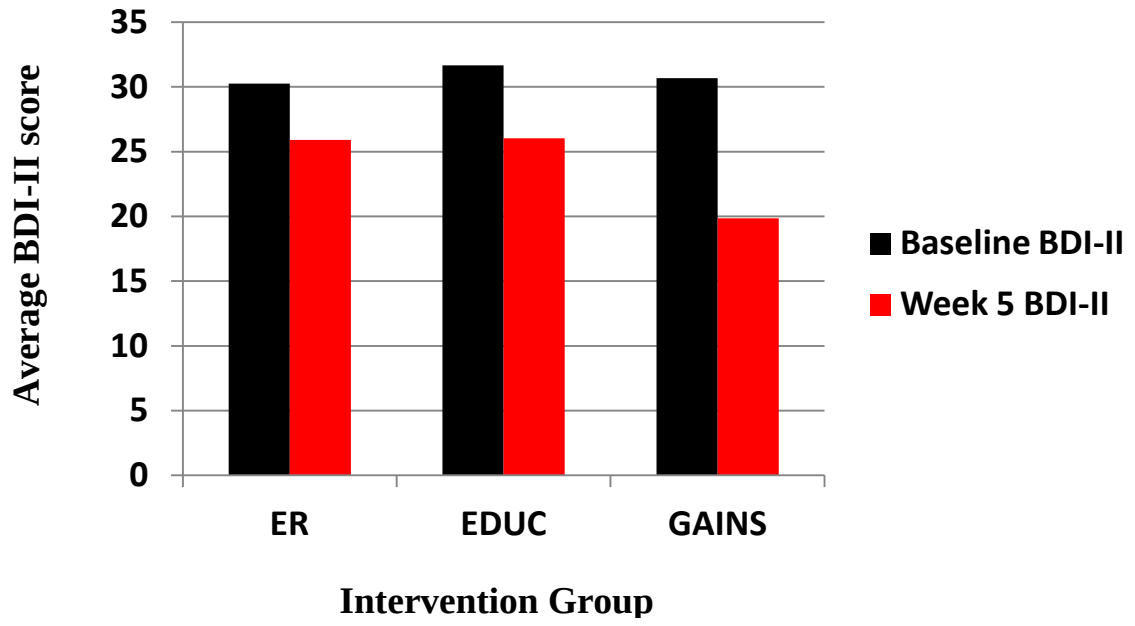

Figure 3. Average BDI-II change by intervention group.